

Statement of Basis
Georgia Pacific – Naheola Mill
101-0001

Georgia Pacific Naheola Mill has applied for a renewal of Major Source Operating Permit 101-0001. This proposed Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Background

The Naheola Mill is a pulp and paper mill located in Pennington, Alabama. The Pennington, AL site is located in Choctaw County which is classified as a Class II county for particulates. The primary activities for the mill are pulp and paper production. The facility is a major source with respect to Title V, PSD, and the MACT/NESHAP standards. Naheola is a major source operating facility for the following pollutants: TSP, PM₁₀, SO₂, NO_x, CO, VOC, TRS, and HAP's.

Power Operations

Naheola Mill's power operations consist of the No. 1 Combination Boiler, No. 2 Combination Boiler, No. 3 Power Boiler, No. 5 Package Boiler, and No. 6 Package Boiler. These utilities provide steam and power for the facility.

No. 1 Combination Boiler

The No. 1 Combination Boiler is a 425 MMBtu/hr boiler that generates steam using natural gas, wood, and sludge as the primary fuel source, but is permitted to fire used oil generated on-site. This boiler was installed in 1958 which is prior to the applicability dates of 40 CFR Part 60 Subparts D, Db, and Dc.

State Regulations:

- 335-3-4-.03; PM
- 335-3-4-.01; Opacity
- 335-3-4-.08; PM
- 335-3-14-.04(a); SO₂, PM

Control Equipment:

The No. 1 Combination Boiler has an ESP for the control of particulate emissions.

Emission Limits and Proposed Periodic Monitoring:

The No. 1 Combination Boiler has the following limits:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	≤ 0.12 lb/MMBtu (when $< 30\%$ wood waste fired); ≤ 63.75 lb/hr (when $\geq 30\%$ wood waste fired)	PSD/MACT	Annual PM test; Steam production rate; Total ESP Power
Mercury	≤ 3200 grams per 24-hour period	NESHAP	Re-testing only required if changes are made in the operation that would potentially increase emissions.
SO ₂	$\leq 1.0\%$ Sulfur limit for fuel; Combined SO ₂ emissions from the No. 1 Combination Fuel Boiler, No. 2 Combination Fuel Boiler, and No. 3 Power Boiler shall be ≤ 1135 lb/hr averaged over any operating day.	PSD/MACT	Fuel use records; Monitoring and Record keeping; Steam production rate
Opacity	≤ 20 percent with one six-minute period up to 40 percent in any one hour period	State	Method 9; Visual observations

No. 2 Combination Boiler

The No. 2 Combination Boiler is a 318 MMBtu/hr boiler that generates steam using coal, wood waste, and sludge as the primary fuel source, but is permitted to fire used oil generated on-site. This Boiler was installed in 1962 which is prior to the applicability dates for 40 CFR Part 60 Subparts Db and Dc.

State Regulations:

- 335-3-4-.01; Opacity
- 335-3-4-.03; PM
- 335-3-4-.08; PM
- 335-3-14-.04(a); SO₂, PM

Control Equipment:

The No. 2 Combination Boiler has an ESP for the control of particulate emissions.

Emission Limits and Proposed Periodic Monitoring:

The No. 2 Combination Boiler has the following limits:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	≤ 0.12 lb/MMBtu (when $< 30\%$ wood waste fired); ≤ 47.7 lb/hr (when $\geq 30\%$ wood waste fired)	BACT/MACT	Annual PM test; Steam production rate; Total ESP Power
SO ₂	$\leq 1.0\%$ Sulfur limit for fuel; Combined SO ₂ emissions from the No. 1 Combination Fuel Boiler, No.	BACT/MACT	Annual SO ₂ test; Fuel receipts (coal); Records of coal fired; Steam production rate

	2 Combination Fuel Boiler, and No. 3 Power Boiler shall be \leq 1135 lb/hr averaged over any operating day.		
Opacity	20 percent with one six-minute period up to 40 percent in any one hour period	SIP	Method 9; Visual observations; CEMS
Mercury	\leq 3200 grams per 24-hour period	NESHAP	Re-testing only required if changes are made in the operation that would potentially increase emissions.

No. 3 Power Boiler

The No. 3 Power Boiler is a 379 MMBtu/hr boiler that generates steam using No. 6 fuel oil as the primary fuel source with natural gas serving as the standby option. This Boiler was installed in 1970 which is prior to the applicability dates for 40 CFR Part 60 Subparts Db and Dc.

State Regulations:

- 335-3-4-.03; PM
- 335-3-14-.04(a); SO₂
- 335-3-4-.01; Opacity

Control Equipment:

There are no add on control devices on this unit.

Emission Limits and Proposed Periodic Monitoring:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	\leq 0.12 lb/MMBtu heat input	NSPS	Annual PM test; COMS data; Steam production rate
SO ₂	The sulfur content of the coal fired shall be \leq 1.25 %; Combined SO ₂ emissions from the No. 1 Combination Fuel Boiler, No. 2 Combination Fuel Boiler, and No. 3 Power Boiler shall be \leq 1135 lb/hr averaged over any operating day.	PSD	Annual SO ₂ test; Steam production rate
Opacity	20 percent with one six-minute period up to 40 percent in any one hour period	SIP	Method 9

No. 5 Package Boiler

The No. 5 Package Boiler has been shut down and dismantled. This unit was removed from the Title V permit.

No. 6 Package Boiler

The No. 6 Package Boiler is a 166.8 MMBtu/hr boiler that generates steam using natural gas as the primary fuel source. This Boiler was installed in 1974, prior to the applicability dates for 40 CFR Part 60 Subparts Db and Dc.

State Regulations:

- 335-3-4-.01; Opacity
- 335-3-5-.01; SO₂
- 335-3-14-.04; PM
- 335-3-4-.03; PM

Control Equipment:

There are no add on control devices on this unit.

Emission Limits and Proposed Periodic Monitoring:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	≤ 0.15 lb/MMBtu heat input; ≤ 2.5 lb/hr	PSD	Annual PM test
SO ₂	≤ 4 lb/MMBtu	SIP	Annual SO ₂ test
Opacity	20 percent with one six-minute period up to 40 percent in any one hour period	SIP	Method 9

Coal Preparation Plant

Run of mine coal is processed through screening/crushing operation to produce crushed coal of nominal 1.25" size before being sent on to either storage piles or the coal bunkers. The coal preparation plant has a rated process capacity of 200,000 lb/hr. Fugitive emissions are controlled by water sprays.

State Regulations:

- 335-3-14-.04; PM
- 335-3-10-.02 (1) and (25); PM

Control Equipment:

There are no add on control devices on this unit.

Emission Limits and Proposed Periodic Monitoring:

Pollutant	Emission Limit	Basis
Particulate	$\leq 20\%$ opacity; ≤ 3.0 lb/hr	SIP

Pulping Operations

Naheola's pulping operations consist of the Nos. 1 – 6 Digester Systems, Nos. 7 and 8 Digester Systems, Pulping System LVHC NCG System, Pulping Process Condensate Collection System. Hardwood and/or softwood chips are cooked in one of 8 batch digesters, or the continuous Kamyr Digester. NCG's from the process flow through a series of condensers, scrubber, and are then incinerated in the No. 3 Lime Kiln or backup NCG Incinerator.

Nos. 1 - 6 Digester Systems

The Nos. 1 - 6 digester system is rated at a maximum of 187.5 tons per day of air dried pulp each. Hardwood chips and white/black liquor blend are added to the top of an individual digester. The digester is capped, heated and brought up to operating pressure by direct steam addition, and then held for a period of time in order to cook the batch. When the holding time is over, the pressure in the digester is released through a blow valve at the bottom of the digester. This causes the contents of the digester to be blown to a receiving blow tank. Relief gases vented from the digester are collected and treated in the NCG system. This source is subject to 40 CFR Part 63 Subpart S.

State Regulations:

- 335-3-5-.04(1)(b)(5); TRS
- 335-3-11-.06(1) and (18); HAPs

Control Equipment:

LVHC NCG's are collected by the Pulping System LVHC NCG system and incinerated in the No. 3 Lime Kiln or the backup NCG Incinerator.

Nos. 7 & 8 Digester Systems

The Nos. 7 & 8 digester system is rated at a maximum of 187.5 tons per day of air dried pulp each. Hardwood chips and white/black liquor blend are added to the top of an individual digester. The digester is capped, heated and brought up to operating pressure by direct steam addition, and then held for a period of time in order to cook the batch. When the holding time is over, the pressure in the digester is released through a blow valve at the bottom of the digester. This causes the contents of the digester to be blown to a receiving blow tank. Relief gases vented from the digester are collected and treated in the NCG system. This source is subject to 40 CFR Part 63 Subpart S and CFR 40 Part 60 Subpart BB.

State Regulations:

- 335-3-10-.02(28); TRS
- 335-3-11-.06(1) and (18); HAPs

Control Equipment:

LVHC NCG's are collected by the Pulping System LVHC NCG system and incinerated in the No. 3 Lime Kiln or the backup NCG Incinerator.

Kamyr Continuous Digester

Softwood chips are pre-steamed and fed into the top of the Kamyr single vessel continuous digester. The chips pass through an impregnation zone and then two heat zones, where liquor is extracted from the digester, heated in indirect heat exchangers, and returned to the digester to raise the chips cooking temperature. After retention in the cooking zone, the pulp passes into an extraction zone. Brown stock filtrate, introduced into the bottom of the digester, flows

countercurrently in this zone. Liquor is extracted and sent to the flash tank. The pulp then exits to the blow tank. This source is subject to 40 CFR Part 63 Subpart S.

Control Equipment:

LVHC NCG's are collected by the Pulping System LVHC NCG system and incinerated in the Lime Kiln or the backup NCG Incinerator.

Pulping Process Condensate Collection System

The Naheola Mill collects the pulping process condensates from the equipment systems that in total contain a HAP mass of 11.1 lb/ton ODP per 40 CFR 63.446(c)(3). Condensate streams from the Digester system, Turpentine Recovery system, Blow Heat Accumulator, and Nos. 1 and 2 Evaporators have been identified to meet the mass collection requirement consistent with the requirements of 40 CFR 63.466(b) and (c)(3).

The identified streams are conveyed in a hard-pipe closed collection system to the Central Foul Condensate Collection Tank. The collected condensates are then discharged below the liquid surface of the aerated stabilization basin of the Riverdale wastewater treatment plant

State Regulations:

- 335-3-11-.06(18); HAPs

Control Equipment:

The pulping Process Condensate Collection System discharges the collection stream into a biological treatment aerated lagoon. Total HAP is reduced by at least 92% by weight or at least 10.2 lb HAP/ODTP is removed.

Proposed Periodic Monitoring:

Periodic monitoring for the process condensate collection system includes records of visual inspections, records of pounds MeOH / ODTP, records of total COD / hp, and quarterly compliance tests to be submitted.

Chemical Recovery Operations

Naheola operates a recovery system that processes combined Kraft black liquor from pulping both hardwood and softwood. The chemical recovery operations consist of the Multiple-Effect Evaporator System, No. 4 Recovery Furnace, and the No. 4 Smelt Dissolving Tank. The Mill concentrates weak black liquor in the Multiple Effects Evaporators. Concentrated black liquor is fired in the recovery furnace. Inorganic chemicals collect in the bottom of the furnace to form molten smelt. Molten smelt is directed to the Smelt Tank where it forms green liquor to regenerate white liquor in the causticizing operation. LVHC NCG's are collected and routed to either the No. 3 Lime Kiln or the Backup NCG Incinerator.

C-Multiple Effect Evaporator Set

Weak black liquor from the pulping operations is processed in this multiple stage evaporator system. Indirect steam heat drives water from the liquid resulting in strong black liquor. The strong black liquor is fed to the recovery furnaces. This source is subject to the requirements of Subpart BB and Subpart S.

Control Equipment:

LVHC NCG's are collected by the Pulping System LVHC NCG system and incinerated in the No. 3 Lime Kiln or the backup NCG Incinerator.

No. 4 Recovery Furnace

The No. 4 Recovery Furnace burns the organic compounds in black liquor to generate steam and is rated at a capacity of 283,340 lb/hr BLS. This furnace is subject to 40 CFR Part 63 Subpart MM (MACT II), 40 CFR Part 60 Subpart Db and 40 CFR Part 60 Subpart BB. This furnace was originally installed in 1992.

State Regulations:

- 335-3-4-.01; Opacity
- 335-3-14-.04 (9); PM, TRS, SO₂, NO_x, CO, VOC
- 335-3-10-.02; PM, TRS, NO_x
- 335-3-11-.06(38); HAPs

Control Equipment:

The No. 4 Recovery Furnace has an ESP for the control of particulate emissions.

Emission Limits and Proposed Periodic Monitoring:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	≤ 0.024 gr/SDCF at 8 % O ₂ and ≤ 74.4 lb/hr	BACT/MACT/NSPS	Opacity records; Records of TBLS firing rate; Annual PM test
TRS	≤ 5 ppmv at 8% O ₂ and ≤ 9.0 lb/hr	BACT/NSPS	TRS CEMs data; Records of TBLS firing rate
CO	≤ 327 ppmv at 8% O ₂ and ≤ 515.9 lb/hr	BACT	%O ₂ records; Records of TBLS firing rate;
SO ₂	≤ 94 ppmv at 8% O ₂ and ≤ 339 lb/hr (Three-hour average) when black liquor is being fired; ≤ 0.3 lb/MMBtu when fuel oil is fired	BACT	Records of TBLS firing rate; Annual SO ₂ test
Opacity	≤ 35 percent	NSPS/SIP	COMS
NO _x	≤ 100 ppmv at 8% O ₂ and ≤ 298 lb/hr when black liquor is fired; ≤ 0.1 lb/MMBtu when natural gas or distillate fuel oil is fired	BACT	Records of TBLS firing rate; 5 year emission testing
NO _x	$E_n = \frac{(EL_{SO_2}H_{SO_2}) + (EL_{NO_2}H_{NO_2}) + (EL_{CO}H_{CO})}{(H_{SO_2}H_{NO_2}H_{CO})}$	NSPS	NO _x CEM's
VOC	≤ 184 ppmv at 8% O ₂ and ≤ 124.4 lb/hr	BACT	Records of TBLS firing rate
HAPs	Incineration		

No. 4 Smelt Dissolving Tank

Molten inorganic chemicals (sodium carbonate and sodium sulfide) run from the bottom of the No. 4 Recovery Furnace into the No. 4 Smelt Tank. The stream of molten smelt is shattered by high velocity steam into small particles before it contacts the liquid to reduce the explosive force of the molten chemical when it hits the cooler water. Here the smelt becomes green liquor and enters the recausticizing loop. This unit was originally installed in 1992. The No. 4 Smelt Tank is subject to 40 CFR Part 60 Subpart BB and 40 CFR Part 63 Subpart MM.

State Regulations:

- 335-3-4-.01; Opacity
- 335-3-11-.06 (1) and (38); HAPs
- 335-3-14-.04 (9); SO₂, TRS, PM
- 335-3-10-.02 (1) and (28); PM, TRS

Control Equipment:

The vent stack in the dissolving tank is fitted with a scrubber system including an exhaust fan.

The dissolving tank gases are routed to the scrubber where weak wash is used to absorb the gases and control the entrained particulate matter.

The scrubbed gases exit the top of the scrubber through a vent and the weak wash is recirculated. A portion of the weak wash is continually replaced to maintain the absorbing efficiency.

Emission Limits and Proposed Periodic Monitoring:

The No. 4 Smelt Dissolving Tank has the following limits:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	≤ 0.2 lb/ton BLS (dry weight) and ≤ 22.5 lb/hr	BACT/MACT/NSPS	Records of TBLS firing rate; Annual PM test; Records of scrubber liquid flow rate and fan on/off status
TRS	≤ 0.033 lb/ton BLS and ≤ 3.7 lb/hr	NSPS	Annual TRS test; Records of TBLS firing rate; Records of scrubber liquid flow rate and fan on/off status
Sulfur Dioxide	≤ 15 lb/hr	BACT	Records of TBLS firing rate; Records of scrubber liquid flow rate and fan on/off status
Opacity	≤ 20 percent with one six-minute period up to 40 percent in any one	NSPS/SIP	Visual observations during routine activities

	hour period		
HAPs	Incineration		

Lime Recovery, and Facility NCG System

Green liquor from the smelt dissolving tanks is clarified and then mixed with CaO in the slaker. The sodium salts in the green liquor react with CaO to form white liquor and lime mud in the causticizers. This white liquor and lime mud is then clarified to separate the white liquor from the lime mud. The white liquor is sent to the digesters, and the lime mud is conditioned, thickened, and burned in the No. 3 Lime Kiln to form CaO.

No. 3 Lime Kiln

Calcium carbonate mud from the lime mud filter is converted to calcium oxide in the kiln. The No. 3 Lime Kiln can fire natural gas or No. 6 fuel oil, and NCG's from the pulping and chemical recovery operations. The precipitated calcium carbonate plant extracts stack gases as a raw material for this process. This kiln was installed in 1986. This unit is subject to 40 CFR Part 60 Subpart BB and 40 CFR Part 63 Subpart MM (MACT II).

State Regulations:

- 335-3-14-.04(9); PM, SO₂, CO, NO_x, VOC, TRS
- 335-3-10-.02(28); PM, TRS
- 335-3-11-.06(1) and (38); HAPs

Control Equipment:

The lime kiln is equipped with a dynamic gas scrubber to control PM, SO₂, and TRS emissions. The lime kiln itself is considered a control device and is used to control the LVHC and HVLC gases at the mill.

Emission Limits and Proposed Periodic Monitoring:

The lime kiln has the following limits:

Pollutant	Emission Limit	Basis	Periodic Monitoring
Particulate	≤ 0.065 gr/sdcf at 10% O ₂ and ≤ 24.5 lb/hr when firing fuel oil or natural gas	BACT/MACT/NSPS	Annual PM test; Records of lime mud feed rate;
SO ₂	≤ 66.5 lb/hr	BACT	Records of scrubber liquid flow rate; Records of lime mud feed rate
NO _x	≤ 175 ppmv at 10% O ₂ and ≤ 56.8 lb/hr	BACT	Records of lime mud feed rate
TRS	≤ 8 ppm at 10% O ₂ and ≤ 1.8 lb/hr	BACT/NSPS	TRS and O ₂ CEMs data; Records of lime mud feed rate
Opacity	≤ 20 % with one six-minute period up to 40% in any one hour period	SIP	Proper operation of source and control equipment
CO	≤ 350 ppmv at 10 % O ₂ and ≤ 69.4 lb/hr	BACT	Records of lime mud feed rate
VOC	≤ 5.1 lb/hr	BACT	Good combustion practices; Records of lime mud feed rate

NCG Incinerator

LVHC NCG's from the pulping and chemical recovery areas are conditioned by two white liquor scrubbers and then combusted in the No. 3 Lime Kiln or the NCG Incinerator. Natural Gas is used for the primary burner.

Control Equipment:

This unit is equipped with a packed-bed/spray tower/venture absorber for the control of SO₂ emissions. The scrubbed gases exit the top of the scrubber through a vent and the weak wash is recirculated. Downstream of the wet scrubber is a wet ESP for the control of PM and SAM emissions.

Emission Limits and Proposed Periodic Monitoring:

Pollutant	Emission Limit	Basis	Periodic Monitoring
SO ₂	≤ 17.5 lbs/hr	BACT	Annual testing; Scrubber total power and Flow rate;
SAM	≤ 0.9 lbs/hr	BACT	Five year testing; Scrubber total power and Flow rate;
PM	≤ 1.5 lbs/hr	BACT	Five year testing; Scrubber total power and Flow rate;

The backup NCG Incinerator is limited to no more than 4380 hours of operation per 12 month rolling period.

Bleaching and De-inking Operations

Bleaching System

The bleaching system consists of the Hardwood Bleach Plant, Softwood Bleach Plant, and the Broke Bleach Plant. The hardwood and softwood plants use chlorine dioxide and caustic to bleach the pulp. The Broke Bleach Plant uses sodium hypochlorite and steam to treat the paper waste. These units are subject to 40 CFR Part 63 Subpart S.

Control Equipment:

The hardwood bleaching system uses a packed bed scrubber for the control of chlorine, chlorine dioxide, and HAP's. The softwood and broke systems are routed to another packed bed scrubber for the control of chlorine, chlorine dioxide, and HAP's.

Emission Limits and Proposed Periodic Monitoring:

Chlorine Dioxide (State Only, Softwood and Broke)	≤ 1.66 lb/hr
Chlorine (State Only, Softwood and Broke)	≤ 1.74 lb/hr
Chlorine Dioxide (State Only, Hardwood)	≤ 0.41 lb/hr
Chlorine (State Only, Hardwood)	≤ 1.52 lb/hr
Total Chlorinated HAPs	≤ 10 ppmv

Chemi-Washer

Accepts from the primary screens go to the Chemi-Washer. Clean hot water and scrubbing cooling water is used as wash water to remove chemicals from the pulp. The weak black liquor from the Chemi-Washer is fed to an evaporator system for concentrating the black liquor solids.

Emissions are collected and treated in a chlorine dioxide scrubber system and a candle mist eliminator before discharge to the atmosphere.

Pollutant	Emission Limit	Basis
Chlorine Dioxide (State Only)	≤ 1.2 lb/hr	Anti-PSD
Chlorine (State Only)	≤ 0.68 lb/hr	Anti-PSD
TRS	≤ 5 ppm	NSPS
PM	≤ 1.7 lb/hr	Anti-PSD
Opacity	≤ 20 %	SIP

65 Ton per Day Chlorine Dioxide Generator

Chlorine dioxide is generated using the RB process. The generating system consists of a generator, a reboiler, and a shell tube heat exchanger. Feed streams to the system include sodium chlorate, methanol, water, and sulfuric acid. Vent gases from the generator system are collected and treated in a packed column scrubber to remove the escaping chlorine dioxide and trace chlorine.

Control Equipment:

Packed column with vent and tail gas scrubber.

Emission Limits and Proposed Periodic Monitoring:

Pollutant	Emission Limit	Basis
Chlorine Dioxide (State Only)	≤ 0.22 lb/hr	Anti-PSD
Chlorine (State Only)	≤ 0.68 lb/hr	Anti-PSD

Storage Tanks

25,000 Gallon Methanol Storage Tank

This tank is subject to the reporting requirements listed in 40 CFR Subpart Kb, and the General Provisos.

50,000 Gallon Distillate fuel Oil Storage Tank

This tank is subject to the reporting requirements listed in 40 CFR Subpart Kb, and the General Provisos.

Enclosures and Closed Vent Systems – LVHC Pulping Vents

LVHC gases are routed to either the lime kiln or the backup NCG incinerator through the enclosures and closed vent systems. The following list shall be used to demonstrate compliance for treatment of HAPs required by Subpart S.

- Annual Leak test (LDAR)
- Spare parts list
- Proper operation and calibration of CMS
- Negative pressure test
- Visual inspection
- Proper recordkeeping and reporting requirements followed

CAM

CAM applies to pollutant specific emission units that are subject to an emission limitation or standard where a control device is used to achieve compliance with an applicable emission limitation. The CAM rule requires facilities to monitor compliance indicators for emission units to provide reasonable assurance for compliance with regulatory emission limitations. This facility currently has units subject to CAM:

- Hardwood Digesters
- Softwood Digesters
- Chemi-Washer
- Chlorine Generator System
- Softwood and Broke Bleaching
- Hardwood Bleaching
- No. 4 Smelt Tank
- No. 3 Lime Kiln
- No. 1 Combination Boiler
- No. 2 Combination Boiler

All of the above mentioned units meet the exemption requirements of 40 CFR 64.2(b)(1)(i); therefore, no CAM plan is required for these units.



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Date